

REMARKS

A. The Difference Between the Claimed Invention and Hayashi et al. (U.S. Patent No. 4,916,897)

In the claimed invention, the exhaust gas flow path pipe (22) passes through the electrically heated catalyst portion (10) as shown in Figures 2 and 3 of the present specification. That is, the electrically heated catalyst portion is provided so as to surround the exhaust gas flow path pipe.

In contrast, although Hayashi comprises a U-turn construction, only the exhaust gas passes through the electric heater 75, but the exhaust gas pipe does not pass through the electrically heated catalyst portion as claimed.

B. The Characteristics of the Claimed Invention

When the catalyst is warmed by electrical heat, the exhaust gas flow path pipe surrounded by the electrically heated catalyst portion can be also warmed. Thus, if the temperature of the exhaust gas is low downstream away from the engine, its temperature can be raised to a level appropriate for exhaust emission control in advance by the exhaust gas passing through the exhaust gas flow path pipe surrounded by the electrically heated catalyst portion.

Then, the exhaust gas emitted from the exhaust gas flow path pipe flows back and passes through the catalyst portion which has been electrically heated to an activating temperature so that the exhaust gas is controlled.

In the claimed invention, therefore, the exhaust gas can be warmed in advance without providing a means for heating the exhaust gas prior to control. In other words, the first time the exhaust gas passes through the electrically heated catalyst portion via the outer peripheral surface of the exhaust gas flow path pipe in order to be heated and the second time the exhaust gas emitted from the exhaust gas flow path pipe flows back and passes through the electrically heated catalyst portion in order to be controlled.


Since the exhaust gas is heated via the exhaust gas flow path pipe, the heat can be conducted over the greater extent of the exhaust gas flow path pipe since the pipe itself conducts heat along its length. Thus, sufficient heating performance can be obtained, compared to the case in which the exhaust gas is warmed when the gas itself is passing through the electrically heated catalyst portion.

The above features are not disclosed in Hayashi.

In view of these remarks, the application should now be in condition for allowance.

Respectfully submitted,

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